

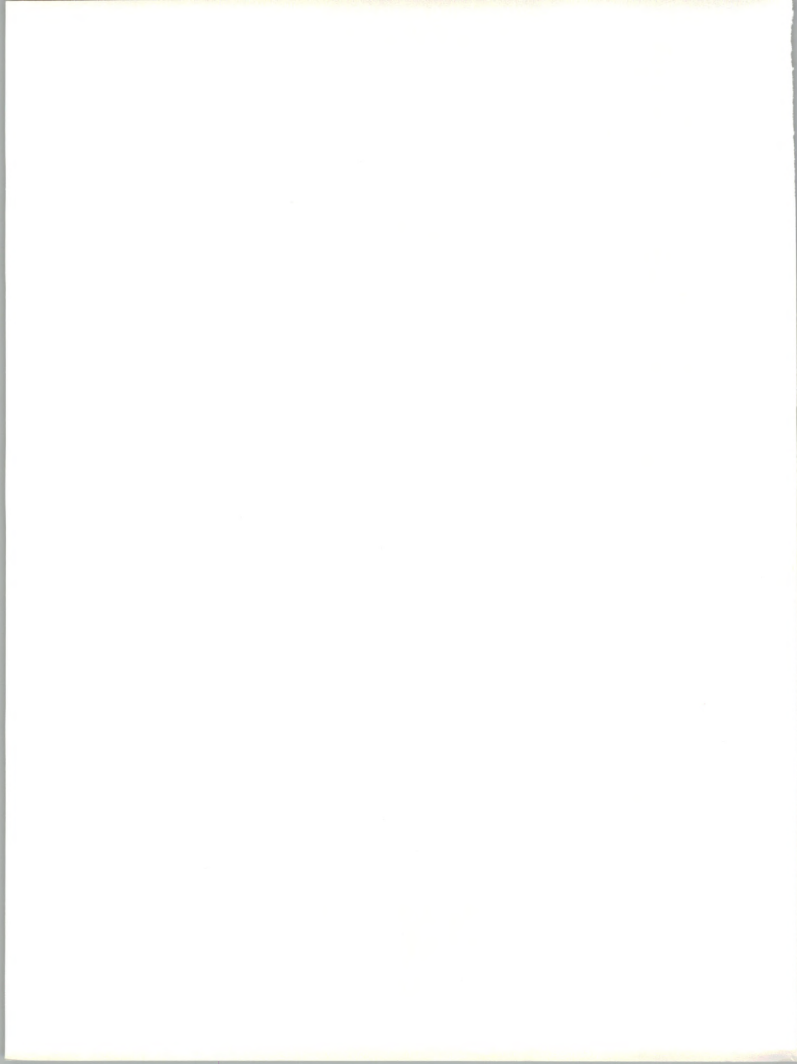
Market Analysis
Program (MAP)

**Industry Sector
Markets
1988-1993**

Utilities Sector



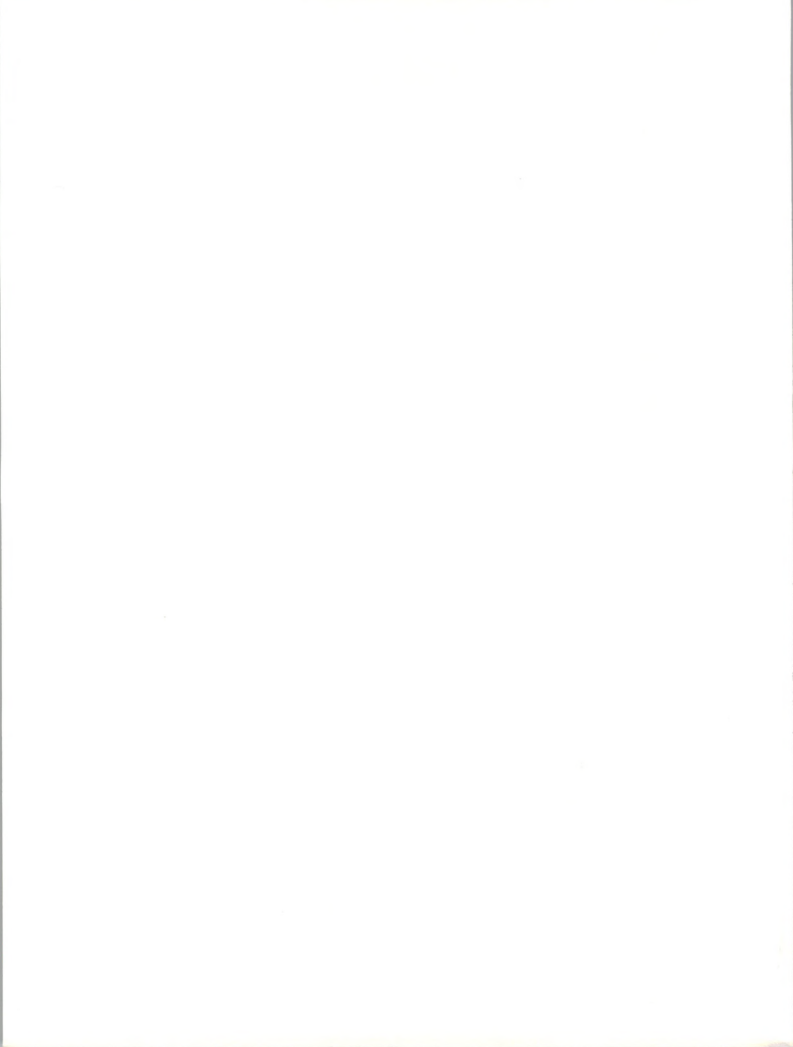
INPUT®



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INDUSTRY SECTOR MARKETS 1988-1993

UTILITIES SECTOR



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**Market Analysis Program
(MAP)**

***Industry Sector Markets, 1988-1993
Utilities Sector***

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Introduction

A

Overview

INPUT analyses utilities as a vertical industry-specific market including the electric, gas, and water/sewage/waste disposal segments.

- Electric utilities include those that are investor-owned, cooperatives, municipality-owned, federal-owned, and state projects/power districts.
- Gas utilities consist of three primary types of companies: transmission, distribution, and local companies.
- Water/sewage/waste disposal utilities include public or municipality-owned utilities, privately-owned utilities, and sewage/waste disposal companies.

Telephone and cable television services are discussed as part of the communications vertical market.

The market delivery modes considered in this report for utilities information services include:

- Processing services
- Network services
- Application software for personal computers, workstations, and mini or mainframe computers
- Turnkey systems
- Systems integration
- Professional services

B

Industry Trends

State and regional trends are changing the status of local utilities from monopolies to more conventional businesses. There has been an extreme emphasis on becoming competitive. This emphasis has made it increasingly important for the information systems function to provide support to the long-term strategic goals of the utility.

In order to remain profitable in times of competitive pressure, many utility companies are starting to diversify into other areas.

- Baltimore Gas & Electric has successfully moved into the area of real estate and investments.
- Potomac Electric has expanded into leasing.
- Florida Power and Light is expanding into the areas of insurance, agribusiness, real estate, and cable television.

With increasing deregulation by the federal government, the utilities are under increasing pressure to provide services in a more cost-effective and efficient manner.

- Many utilities are implementing flexible billing systems to provide more responsive rates to consumers.
- Utility companies are using automated customer services systems to improve their customer service image.

Many states are allowing the utilities to sell bulk amounts of electricity to areas outside normal service territory, allowing the utility to lower rates within the service territory.

Utilities are trying to expand product offerings and become more profitable by introducing cable television services as part of the utility package to customers.

C

Driving Forces

Many of the forces effecting the utility industry today manifested themselves over the past several years, but are now increasing in intensity.

Government deregulation of prices for electricity and gas are adding pressure to the utilities to produce and market products and services more effectively. This pressure, coupled with the regulation of yield on equity for the utilities, is limiting the return they can earn on their investment, and is making power a buyer's market. The following are some of the major forces influencing the industry.

- Some states are allowing utilities to sell gas and electricity outside of their area.
- State utility commissions are separating rate adjustments into the costs of producing power and the cost of transmitting power.
- Regulation of return on equity limits the profit that the utility can expect while supplying services to customers who are free to shop for their power.

The costs of building and maintaining nuclear power plants continue to be a major problem to utility companies. Once the plants are operational, there is a continuing need to maintain records and equipment to protect the initial investment.

- Initial costs to build new plants are continuing to rise yearly as building regulations increase.
- Maintenance records on the equipment, as well as exposure and other work-related records on personnel, are under close scrutiny by the Nuclear Regulatory Commission.

Cogeneration of power has become a major force in the utility industry as many private and public companies are producing electric power to sell back to the utility as a by-product of their process and as a way to reduce costs.

- By law, this power must be repurchased by the local utility at comparatively high rates.
- The number of companies filing with the Federal Energy Regulatory Commission for approval to cogenerate power will increase to over 2,000 by 1990.

Mergers and acquisitions are increasing as the thrust to provide services in a cost-efficient manner demand more from the utilities. Utilities with excess supplies of power are merging with neighbors with growing needs for power to supply to existing customers. Utilities are attempting to counteract the effects of price deregulation, return on equity regulation, cogeneration, and the cost of building new (especially nuclear) power plants.

- Utilities are operating under the threat of acquisitions by outside investors. These investors then operate the utility as a public company with profit and loss responsibilities.

EXHIBIT I-1

UTILITIES SECTOR—DRIVING FORCES

- Government deregulation/regulation of utilities
- Costs of building/maintaining nuclear power plants
- Cogeneration of power
- Mergers and acquisitions

the 1990s, the number of people in the world who are under 15 years of age has increased from 1.1 billion to 1.5 billion, and the number of people aged 65 and over has increased from 0.5 billion to 0.7 billion (United Nations 1999).

There is a growing awareness of the need to address the needs of the young and the old. The United Nations (1999) has identified the need to address the needs of the young and the old as one of the eight Millennium Development Goals. The goal is to 'reduce the number of people living in poverty' (United Nations 1999, p. 1).

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D**Issues for Vendors**

To meet the demand to operate "smarter" and to contain costs, vendors are being called upon to support the utility companies in their efforts to survive.

- Systems are needed that will provide management control and dissemination of information throughout the utility organization. These systems will be controlling the power and water networks as well as monitoring and forecasting future requirements.
- The demand for water supply monitoring systems is becoming more important as the demand for water increases and the use of multiple sources complicates the supplying of these needs by the local utilities.

Cogeneration and alternative energy suppliers will require the development of new types of control and monitoring systems specific to these delivery modes.

- Cogeneration companies will require systems that address the control and monitoring of power produced by the industrial sector and sold to the utility companies.
 - Monitoring systems will keep track of the power required, the power cogenerated, and the amount required by the utility to meet customer needs.
 - Specialized billing and accounting systems will also be needed on the part of the utility and the cogenerating company to account for this transfer of energy.
- Alternative energy suppliers, such as the trash to power systems, will also require new and specialized systems to monitor the consumption of fuel and the regulation and distribution of power produced.

Grid generation and control will continue to be a major area for vendors to concentrate. As power is obtained from multiple sources, the coordination of these sources continues to present new and unique information requirements.

- Brown-out control will be accomplished by grid monitoring systems that identify the unfulfilled need for power and redirect power from other sources. This will be especially important during the critical use months of the summer or during low production periods at other plants.
- Systems will be required to monitor the least cost sources of power and accommodate the billing of distributors by the power grid generators.

All of the previously mentioned systems have dealt with the provision of utility services to customers. The overhead monitoring and accounting for these services after they are provided to the customer will also be important for several reasons.

- Utilities will need to interface with the consumers in a more automated fashion that will contain the overhead costs of the customer accounting segment of service.
 - Automated meter-reading is proving to save many hours of overhead time and producing much more accurate accounts.
 - Customer data bases are being integrated to supply usage, billing, and service functions.
 - Data bases are becoming valuable repositories of information on consumption of energy by customers to forecast future needs.

EXHIBIT I-2**VENDOR ISSUES**

- Cost-containment systems
- Cogeneration/alternative energy sources
- Grid control
- Customer service/billing

E

**Issues for Information
Systems (IS)
Departments and
Vendors**

All of the strategic issues facing the IS department deal with supporting the company in a changing business environment. The IS department is taking a more proactive role in supporting company strategy through the use of technology to increase productivity throughout operations and administrative functional areas.

- Programs are required to support distributed processing, applications, and productivity tools in the hands of the end users.
- IS must support the cost-containment programs of the organization with high productivity, the development of cost-based systems, and the delivery of systems in a shorter timeframe than in the past.

The utility companies have made various attempts at automation over the last decade. Batch processing of accounting files and invoice production has been done since the 1970s. These attempts are now being solidified into integrated systems to provide more efficient support.

- Relational data bases to process customer information and provide comprehensive service and marketing information are being implemented by many utilities.
- Personnel, process, and maintenance tracking/scheduling is becoming more organized and efficient as scheduling programs takeover and integrate all of these functions into a cohesive plan.

As the IS department becomes an integral part of the utility company, there is a need to hire, develop, and keep good quality people to support IS. The need for competitiveness in salary and benefits is becoming paramount to the IS department. Skilled workers demand the latest in computer hardware and software to assist them in their job, and want the opportunity to do more than just maintain the existing systems. The utilities companies in order to attract and retain good MIS people must pay slightly higher salaries for the top people. This translates to salaries 11% above the average for IS people in utility companies based on a recent independent study of industrywide IS salaries.

EXHIBIT I-3

IS DEPARTMENT ISSUES

- Support company strategy
- Provide integrated systems
- Retain qualified productive personnel

Table 1. The number of subjects in each age group and the number of subjects in each age group who were included in the analyses of the data from the three experiments

Age group	Experiment 1	Experiment 2	Experiment 3
10-11	10	10	10
12-13	10	10	10
14-15	10	10	10
16-17	10	10	10
18-19	10	10	10
20-21	10	10	10
22-23	10	10	10
24-25	10	10	10
26-27	10	10	10
28-29	10	10	10
30-31	10	10	10
32-33	10	10	10
34-35	10	10	10
36-37	10	10	10
38-39	10	10	10
40-41	10	10	10
42-43	10	10	10
44-45	10	10	10
46-47	10	10	10
48-49	10	10	10
50-51	10	10	10
52-53	10	10	10
54-55	10	10	10
56-57	10	10	10
58-59	10	10	10
60-61	10	10	10
62-63	10	10	10
64-65	10	10	10
66-67	10	10	10
68-69	10	10	10
70-71	10	10	10
72-73	10	10	10
74-75	10	10	10
76-77	10	10	10
78-79	10	10	10
80-81	10	10	10
82-83	10	10	10
84-85	10	10	10
86-87	10	10	10
88-89	10	10	10
90-91	10	10	10
92-93	10	10	10
94-95	10	10	10
96-97	10	10	10
98-99	10	10	10
100-101	10	10	10
102-103	10	10	10
104-105	10	10	10
106-107	10	10	10
108-109	10	10	10
110-111	10	10	10
112-113	10	10	10
114-115	10	10	10
116-117	10	10	10
118-119	10	10	10
120-121	10	10	10
122-123	10	10	10
124-125	10	10	10
126-127	10	10	10
128-129	10	10	10
130-131	10	10	10
132-133	10	10	10
134-135	10	10	10
136-137	10	10	10
138-139	10	10	10
140-141	10	10	10
142-143	10	10	10
144-145	10	10	10
146-147	10	10	10
148-149	10	10	10
150-151	10	10	10
152-153	10	10	10
154-155	10	10	10
156-157	10	10	10
158-159	10	10	10
160-161	10	10	10
162-163	10	10	10
164-165	10	10	10
166-167	10	10	10
168-169	10	10	10
170-171	10	10	10
172-173	10	10	10
174-175	10	10	10
176-177	10	10	10
178-179	10	10	10
180-181	10	10	10
182-183	10	10	10
184-185	10	10	10
186-187	10	10	10
188-189	10	10	10
190-191	10	10	10
192-193	10	10	10
194-195	10	10	10
196-197	10	10	10
198-199	10	10	10
200-201	10	10	10
202-203	10	10	10
204-205	10	10	10
206-207	10	10	10
208-209	10	10	10
210-211	10	10	10
212-213	10	10	10
214-215	10	10	10
216-217	10	10	10
218-219	10	10	10
220-221	10	10	10
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224-225	10	10	10
226-227	10	10	10
228-229	10	10	10
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232-233	10	10	10
234-235	10	10	10
236-237	10	10	10
238-239	10	10	10
240-241	10	10	10
242-243	10	10	10
244-245	10	10	10
246-247	10	10	10
248-249	10	10	10
250-251	10	10	10
252-253	10	10	10
254-255	10	10	10
256-257	10	10	10
258-259	10	10	10
260-261	10	10	10
262-263	10	10	10
264-265	10	10	10
266-267	10	10	10
268-269	10	10	10
270-271	10	10	10
272-273	10	10	10
274-275	10	10	10
276-277	10	10	10
278-279	10	10	10
280-281	10	10	10
282-283	10	10	10
284-285	10	10	10
286-287	10	10	10
288-289	10	10	10
290-291	10	10	10
292-293	10	10	10
294-295	10	10	10
296-297	10	10	10
298-299	10	10	10
300-301	10	10	10
302-303	10	10	10
304-305	10	10	10
306-307	10	10	10
308-309	10	10	10
310-311	10	10	10
312-313	10	10	10
314-315	10	10	10
316-317	10	10	10
318-319	10	10	10
320-321	10	10	10
322-323	10	10	10
324-325	10	10	10
326-327	10	10	10
328-329	10	10	10
330-331	10	10	10
332-333	10	10	10
334-335	10	10	10
336-337	10	10	10
338-339	10	10	10
340-341	10	10	10
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344-345	10	10	10
346-347	10	10	10
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352-353	10	10	10
354-355	10	10	10
356-357	10	10	10
358-359	10	10	10
360-361	10	10	10
362-363	10	10	10
364-365	10	10	10
366-367	10	10	10
368-369	10	10	10
370-371	10	10	10
372-373	10	10	10
374-375	10	10	10
376-377	10	10	10
378-379	10	10	10
380-381	10	10	10
382-383	10	10	10
384-385	10	10	10
386-387	10	10	10
388-389	10	10	10
390-391	10	10	10
392-393	10	10	10
394-395	10	10	10
396-397	10	10	10
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406-407	10	10	10
408-409	10	10	10
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412-413	10	10	10
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434-435	10	10	10
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444-445	10	10	10
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454-455	10	10	10
456-457	10	10	10
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462-463	10	10	10
464-465	10	10	10
466-467	10	10	10
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470-471	10	10	10
472-473	10	10	10
474-475	10	10	10
476-477	10	10	10
478-479	10	10	10
480-481	10	10	10
482-483	10	10	10
484-485	10	10	10
486-487	10	10	10
488-489	10	10	10
490-491	10	10	10
492-493	10	10	10
494-495	10	10	10
496-497	10	10	10
498-499	10	10	10
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506-507	10	10	10
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510-511	10	10	10
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522-523	10	10	10
524-525	10	10	10
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530-531	10	10	10
532-533	10	10	10
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536-537	10	10	10
538-539	10	10	10
540-541	10	10	10
542-543	10	10	10
544-545	10	10	10
546-547	10	10	10
548-549	10	10	10
550-551	10	10	10
552-553	10	10	10
554-555	10	10	10
556-557	10	10	10
558-559	10	10	10
560-561	10	10	10
562-563	10	10	10
564-565	10	10	10
566-567	10	10	10
568-569	10	10	10
570-571	10	10	10
572-573	10	10	10
574-575	10	10	10
576-577	10	10	10
578-579	10	10	10
580-581	10	10	10
582-583	10	10	10
584-585	10	10	10
586-587	10	10	10
588-589	10	10	10
590-591	10	10	10
592-593	10	10	10
594-595	10	10	10
596-597	10	10	10
598-599	10	10	10
600-601	10	10	10
602-603	10	10	10
604-605	10	10	10
606-607	10	10	10
608-609	10	10	10
610-611	10	10	10
612-613	10	10	10
614-615	10	10	10
616-617	10	10	10
618-619	10	10	10
620-621	10	10	10
622-623	10	10	10
624-625	10	10	10
626-627	10	10	10
628-629	10	10	10
630-631	10	10	10
632-633	10	10	10
634-635	10	10	10
636-637	10	10	10
638-639	10	10	10
640-641	10	10	10
642-643	10	10	10
644-645	10	10	10
646-647	10	10	10
648-649	10	10	10
650-651	10	10	10
652-653	10	10	10
654-655	10	10	10
656-657	10	10	10
658-659	10	10	10
660-661	10	10	10
662-663	10	10	10
664-665	10	10	10
666-667	10	10	10
668-669	10	10	10
670-671	10	10	10
672-673	10	10	



Market Forecasts

A

Introduction

INPUT divides the utility market into three segments:

- Electricity
- Gas
- Water and waste disposal

The SIC (Standard Industrial Classification) for this market sector is 49 (491-497), which includes:

- Electric services
- Gas production and distribution
- Combination electric and gas and other services
- Water supply
- Sanitary services
- Steam supply
- Irrigation systems

The number of utility companies in the U.S. in 1987 is shown in Exhibit II-1, and the number of utility company employees as of 1987 is estimated in Exhibit II-2.

With the thrust to remain competitive and hold-off hostile takeovers, as well as to provide the best service possible, all but the very smallest utility companies are now seeking some degree of automation. The smaller companies can make use of software packages that will help them maintain customer records and calculate monthly invoices.

Administrative computing needs at utility companies are fairly homogeneous. Maintaining customer records and invoicing are similar at electric, gas, and water/waste utilities. Operations computing requirements are fundamentally similar, with the key exception being government regulatory reporting requirements for nuclear power plants.

the 1990s, the number of people in the UK who are aged 65 and over has increased by 1.5 million (1990–1999) and is projected to increase by a further 1.5 million by 2010 (Office of National Statistics 2000). The number of people aged 65 and over is projected to increase by 2.5 million by 2020 (Office of National Statistics 2000).

There is a growing awareness of the need to develop strategies to meet the needs of the ageing population. The Department of Health (2000) has published a strategy for ageing, which sets out the government's commitment to improve the lives of older people. The strategy is based on the following principles:

- Older people should be able to live independently and actively.
- Older people should be able to access the services and facilities they need.
- Older people should be able to participate in the decisions that affect their lives.
- Older people should be able to live in a safe and secure environment.

The strategy also sets out a number of key objectives, including:

- To improve the health and well-being of older people.
- To improve the social and economic participation of older people.
- To improve the living conditions of older people.
- To improve the support and care available to older people.

The strategy is a key document for the development of policies and services for older people. It provides a framework for the development of a range of services, including health care, social care, housing, and transport. The strategy also sets out a number of key indicators for monitoring the progress of the strategy.

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EXHIBIT II-1

NUMBER OF UTILITIES IN U.S. BY TYPE 1987

Type	Number of Utilities
Electric*	
• Investor-owned	205
• Cooperatives	937
• Municipalities/publicly-owned	1,812
• Federal-marketing agencies	7
• State projects/power districts	157
Total - Electric Utilities	3,118
Gas**	
• Transmission	150
• Distribution (utilities)	450
• Municipal companies	735
Total - Gas Utilities	1,335
Water ††	
• Public/municipalities	18,000
• Private ownership	6,000
Total - Water Utilities	24,000
Sewage and waste disposal ††	
• Sewage services	5,100
• Combined services	500
Total - Sewage and Waste Disposal Utilities	5,600
Grand total	34,053

*Source: Edison Electric Institute

†† Source: Sales and Marketing Management Magazine

**Source: American Gas Association

EXHIBIT II-2

**NUMBER OF EMPLOYEES
BY TYPE OF UTILITY, 1987**

Utility	Total Employees
Electric (491)	680,000
Gas (492) (Production and distribution)	230,000
Combination utility services	108,000
Water	104,000
Sanitary services	125,000
Total	1,247,000

Utilities are built and tailored to the needs of the people they serve. With each utility being unique in the approach by which it conducts its business, some degree of customization is always necessary.

B**Demographic
Forecast**

Merger activity will continue to have an impact on the number of electric utilities over the next five years, leading to continued small declines in the number of utilities.

- Competition from alternate power sources, such as wind and solar, and other providers will continue to force utilities to become more efficient.
- Maximum utilization of existing facilities may require some consolidation to meet the changing demands on the utility.
- The small- and medium-sized utilities will be most effected by these changing demands and will merge or consolidate resources to be able to efficiently meet the requirements of their customers.

The number of gas utilities will remain fairly constant, with a few mergers or acquisitions among the small- and medium-sized companies.

The number of water districts will also remain constant, assuming a minimum of merger and acquisition activity.

The number of combined sewage and waste disposal operations will increase very slightly as more municipalities address the disposal of waste in an environmentally safe manner.

C

Total Industry Forecast, 1988-1993

INPUT estimates that utility sector expenditures for information services contracted with outside vendors will reach \$2.2 billion in the U.S. in 1993. This is an 18% compounded annual growth rate through 1993, increasing from \$960 million in 1988.

The market will be dominated by the professional services and systems integration firms that will account for over 62% of the expenditures in the utility sector. Application software products will account for the next major portion with 19% of the expenditures. Processing services, network/electronic information services, and turnkey systems will account for the remaining 19%.

- The expenditures for in-house staff to produce new software systems and enhancements is not included in this forecast. Only the services and applications purchased from outside vendors are considered as part of this forecast.

Market size and growth rates are shown in Exhibits II-3, II-4, and II-5.

The systems integration sector growth of 32% reflects the trend of the industry to build large integrated systems to monitor and control utility systems.

- Many of the utilities are trying to be cost efficient in their updating of IS by utilizing their existing fragmented data bases and integrating them into higher-level, more sophisticated systems.

Network information services will exceed the industry growth rate with a compounded annual growth rate of 19%. These services include the increasing number of data bases of regulatory and scientific information and issues that are utilized by the utility companies to control the processes of building new power plants to operate at peak efficiency.

- The advent of energy pools will increase the amount of electronic information flow between transmitters and distributors of energy resources, including electricity and gas.
- Water utilities have recently begun to consolidate into pools to plan and monitor the use of water by large metropolitan areas.

the 1990s, the number of people in the UK who are aged 65 and over has increased from 10.5 million to 12.5 million, and the number of people aged 75 and over has increased from 4.5 million to 6.5 million (Office of National Statistics 2000). The number of people aged 65 and over is projected to increase to 15.5 million by 2020, and the number of people aged 75 and over to 8.5 million (Office of National Statistics 2000). The increase in the number of people aged 65 and over is due to a combination of factors, including a decline in the birth rate, a decline in the death rate, and a decline in the rate of immigration. The increase in the number of people aged 75 and over is due to a combination of factors, including a decline in the birth rate, a decline in the death rate, and a decline in the rate of immigration.

The increase in the number of people aged 65 and over has led to a corresponding increase in the number of people who are dependent on others for their care. In 1990, there were 1.5 million people aged 65 and over who were dependent on others for their care. By 2000, this number had increased to 2.5 million, and it is projected to increase to 3.5 million by 2020 (Office of National Statistics 2000). The increase in the number of people who are dependent on others for their care is due to a combination of factors, including a decline in the birth rate, a decline in the death rate, and a decline in the rate of immigration.

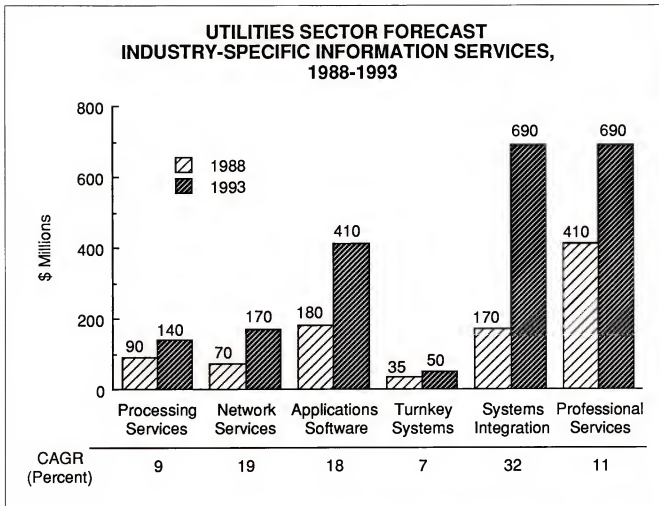
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EXHIBIT II-3



Application software products will see the increased use of packaged solutions as more of these applications are being developed by vendors involved in this area.

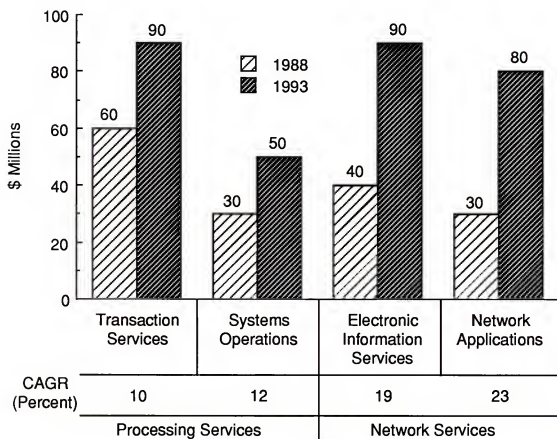
- Many utilities are bringing the processing of data down to the workstation level with distributed processing and the increased use of LANS in administrative and operations functions.

Other delivery modes are running slightly below the sector average reflecting the maturity of these modes and the services that they provide.

- Turnkey systems will see a steady growth of 10% reflecting the continuing preference for turnkey solutions, in favor of the customized software professional services and systems integration solutions. Microcomputers, with increased power capability, are providing less expensive turnkey solutions than seen in the past.

EXHIBIT II-4

**UTILITIES SECTOR FORECAST
INDUSTRY-SPECIFIC INFORMATION SERVICES
BY DELIVERY MODE, 1988-1993**



the 1990s, the number of people in the UK who are aged 65 and over has increased by 1.5 million, and the number of people aged 75 and over has increased by 1.2 million (Office of National Statistics 2000). The number of people aged 85 and over has increased by 0.5 million.

There is a growing awareness of the need to develop services to meet the needs of the ageing population. The Department of Health (1999) has published a strategy for ageing, which sets out the government's commitment to improve the lives of older people. The strategy is based on the following principles: older people should be able to live independently and actively; older people should be able to access the services they need; and older people should be able to participate in the decisions that affect their lives. The strategy also sets out a number of specific objectives, including: to reduce the number of older people who are in care homes; to improve the quality of care in care homes; to increase the number of older people who are employed; and to increase the number of older people who are active in their communities.

The strategy is a key document for the development of services for older people. It provides a framework for the development of services and sets out the government's commitment to improve the lives of older people. The strategy is based on the following principles: older people should be able to live independently and actively; older people should be able to access the services they need; and older people should be able to participate in the decisions that affect their lives. The strategy also sets out a number of specific objectives, including: to reduce the number of older people who are in care homes; to improve the quality of care in care homes; to increase the number of older people who are employed; and to increase the number of older people who are active in their communities.

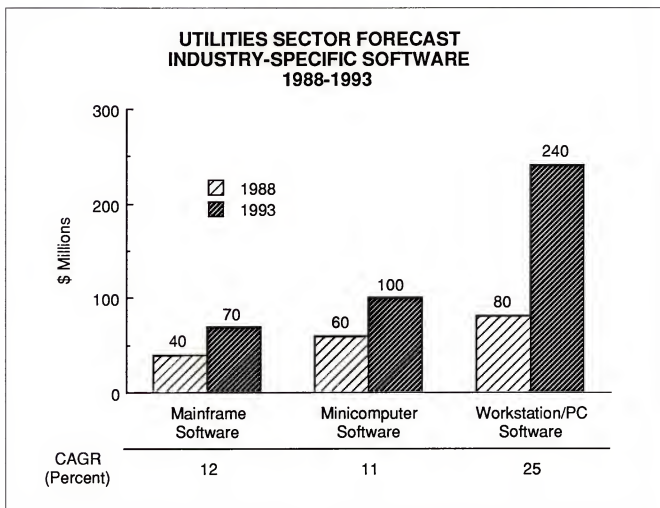
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EXHIBIT II-5





Competitive Developments

Recent trends have indicated a need for specialized software and information systems for the utility industry. Many vendors are concentrating in specific areas of system needs, such as radiation monitoring data bases and maintenance information data bases. As the utilities become more involved in information technology, they are recognizing the need for systems that will monitor systems, monitor regulations, and share information, on-line, in an efficient manner.

- One of the emerging areas of utility monitoring is that of radiological data monitoring for nuclear power plant personnel. This system monitors and tracks personnel and the frequency and amount of time spent in high radiation areas. This type of control system is mandated by the Nuclear Regulatory Commission as necessary for the operation of a nuclear power plant.

In the area of electronic data interchange (EDI), utility companies are using existing networks as a means to invoice customers and purchase supplies and services.

- Georgia Power (Atlanta) has been instrumental in the development of systems to invoice large customers and purchase supplies using EDI.
- Consumers Power (Jackson, MS) uses EDI for invoicing and for EDI/EFT (EDI/ Electronic Funds Transfer) invoice payments, particularly with railroads which are large, multipoint electricity users who normally receive thousands of monthly invoices.
- American Electric Power Company (Columbus, OH) is using EDI in purchasing operations.

EDI is viewed as a means of connecting independent power companies to power pools. The need for these arrangements will increase due to

the 1990s, the number of people in the UK who are aged 65 and over has increased by 1.5 million, and the number of people aged 75 and over by 1.2 million (Office of National Statistics 1999).

There is a growing awareness of the need to address the needs of older people in the community. The Department of Health (1999) has published a strategy for older people, which sets out a vision for the future of older people's services. The strategy is based on the principle of 'active ageing', which is the process of maintaining and enhancing the ability of older people to participate in the life of the community. The strategy also sets out a number of key objectives, including: to improve the health and well-being of older people; to promote social inclusion; and to ensure that older people have access to the services and support they need.

One of the key challenges facing older people is the loss of independence. This can be caused by a number of factors, including physical decline, cognitive impairment, and social isolation. The loss of independence can have a significant impact on the quality of life of older people, and it is important to find ways to support them in maintaining their independence. One way to do this is by providing them with the services and support they need to live safely and independently in their own homes. This can include things like home care services, meal delivery services, and transportation services.

Another key challenge facing older people is the loss of social contact. This can be caused by a number of factors, including the death of friends and family, moving to a new home, and the loss of a spouse. The loss of social contact can have a significant impact on the mental health of older people, and it is important to find ways to help them maintain their social connections. One way to do this is by providing them with opportunities to participate in social activities and groups. This can include things like community centres, clubs, and support groups.

There are a number of ways to support older people in maintaining their independence and social contact. One way is by providing them with the services and support they need to live safely and independently in their own homes. This can include things like home care services, meal delivery services, and transportation services. Another way is by providing them with opportunities to participate in social activities and groups. This can include things like community centres, clubs, and support groups. It is important to find ways to support older people in maintaining their independence and social contact, as this can have a significant impact on their quality of life.

There are a number of factors that can contribute to the loss of independence and social contact in older people. These include physical decline, cognitive impairment, and social isolation. It is important to understand these factors in order to find ways to support older people in maintaining their independence and social contact. For example, if an older person is experiencing physical decline, it may be helpful to provide them with physical therapy or other services to help them maintain their physical health. If an older person is experiencing cognitive impairment, it may be helpful to provide them with cognitive stimulation or other services to help them maintain their cognitive function.

It is also important to understand the social factors that can contribute to the loss of independence and social contact in older people. For example, the death of friends and family can have a significant impact on an older person's social life. It is important to provide support to older people who are experiencing this loss, and to help them find ways to maintain their social connections. This can include things like providing them with opportunities to participate in social activities and groups, or providing them with emotional support and counselling.

In conclusion, there are a number of ways to support older people in maintaining their independence and social contact. It is important to find ways to support older people in maintaining their independence and social contact, as this can have a significant impact on their quality of life.

deregulatory trends instituted by the Federal Energy Regulatory Commission which encourages competitive bidding among power generators. EDI would be used for the competitive bidding process.

- The New York Power Pool, formed in 1978, uses a computer-assisted economic dispatch and automated control system to monitor regional demand for power and route the least expensive power as required. Real-time data is collected from power-generating plants in the Midwest, Atlantic states, New England, and Canada.

The Enercom subsidiary of Equifax markets several energy planning software systems that are used by the utility companies to offer additional energy planning to its customers.

- The Residential Energy Audit System, EnerGraf™, and LOAD-SHAPER™ provide assistance in analyzing and planning energy requirements.
- Other software available includes data base management for scheduling and job-tracking functions of weatherization programs and the Exchange™ System for customer "skip-accounts" analysis.

American Software, Inc. has been active in providing systems in the areas of planning, inventory management, purchasing, accounting, and work scheduling for the utilities industry. These systems are designed to help the utility increase their margins through reducing costs and increasing productivity and improve the customer service function.

The Energy Management Division of Control Data Corporation, one of the utility industry's largest suppliers of energy management control systems, has recently announced full-graphics capability for utility monitoring and control. Other recent contracts include software for on-line systems control and data acquisition, alarm processing, automatic generation control, network analysis, scheduling, data management, and operations planning. Systems will enable electric utilities to improve reliability and economy in power generation and transmission.

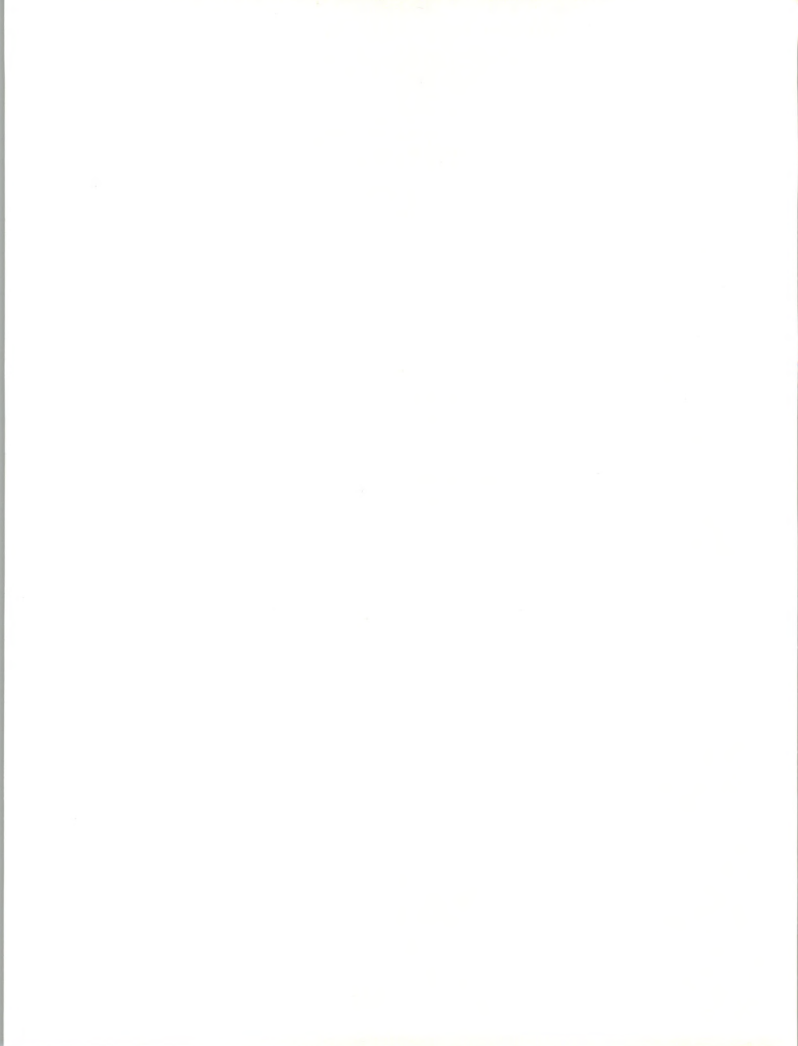
A list of representative vendors that provide services to the utilities industry is shown in Exhibit III-1.



EXHIBIT III-1

**UTILITIES SECTOR
REPRESENTATIVE VENDORS**

Vendor	Revenue (\$ Millions)	Market Share (Percent)
Andersen Consulting	60.0	7.4
Arthur D. Little	43.0	5.3
E.I.International	20.0	2.5
Enercom	11.2	1.4
American Software, Inc.	9.1	1.1
Digital Systems, Inc.	6.7	0.8
Quadrex	6.0	0.7
Computer Task Group	4.5	0.6
Electrocon Int.	1.5	0.2
Subtotal	162.0	20.0
All Other Vendors	649.5	80.0
Total	811.5	100





Summary

Utility companies are under increasing pressure from the government, investors, and consumers to provide their services in the most cost-efficient method possible. Consumers do not want to foot the bill for increasing overhead costs. Large industrial customers are now able to competitively buy their power and are entering the energy game themselves through cogeneration of electricity. The government has added increased pressure by deregulation of the utilities, while continuing to regulate the price increases that can be passed on to consumers.

The four main factors that impacted utility companies' 1988 budgets were the following:

- Cost containment/reduction for overhead
- Hardware costs
- Software/systems costs
- Information system efficiencies

The information systems departments are under pressure to live within the constraints given by upper management to keep their costs down while developing into a quality service area that contributes to the overall productivity of the company. These same budget and productivity constraints are expected to carry through over the next five years.

The utility companies are depending on outside vendors to help them cope with this increased pressure to provide services.

- Of utilities surveyed for the *Information Systems Planning Report*, over 90% stated they were going to be doing over 50% of their applications work with outside companies.

These specialized applications of the utilities can differ between geographic areas as well as between the power, water, and gas sectors.

- More custom systems will be required to take existing systems and maximize them into fully functional integrated information systems. This custom scenario provides opportunities for professional services firms with presence or experience in the utility sector.
- There will be a heavy emphasis on human interface with the data generated, or making the data meaningful. Artificial intelligence will be applied to many of these areas to help interpretation.

Growth areas for vendors will include services and applications that will integrate the utility companies into larger pools as well as make each individual utility as efficient as possible in the provision of service to consumers.



Appendix: User Expenditure Forecast, 1987-1993

EXHIBIT UT-A-1

UTILITIES SECTOR USER EXPENDITURE FORECAST BY DELIVERY MODE, 1988-1993 (\$ Millions)

Sector by Delivery Mode	1987 (%)	Growth 87-88	1988	1989	1990	1991	1992	1993 (%)	CAGR 88-93
Total Utilities Sector	800	17	955	1,100	1,290	1,535	1,800	2,150	18
Processing Services	75	10	90	90	110	120	130	140	11
Transaction Processing Services	50	10	60	60	70	80	80	90	10
Systems Operations	25	12	30	30	40	40	50	50	12
Network/Electronic Information Services	50	21	70	70	90	110	130	170	21
Electronic Information Network Applications Services	30	20	40	40	50	60	70	90	19
	20	22	30	30	40	50	60	80	23
Application Software Products	145	20	180	220	240	290	340	410	18
Mainframe	35	14	40	50	50	60	60	70	10
Minicomputer	50	13	60	70	70	80	90	100	11
Workstation/PC	60	31	80	100	120	150	190	240	26
Turnkey Systems	30	10	35	40	40	45	50	50	10
Systems Integration	130	35	170	230	310	410	530	690	32
Professional Services	370	10	410	450	500	560	620	690	11

Note: Forecast data has been rounded.



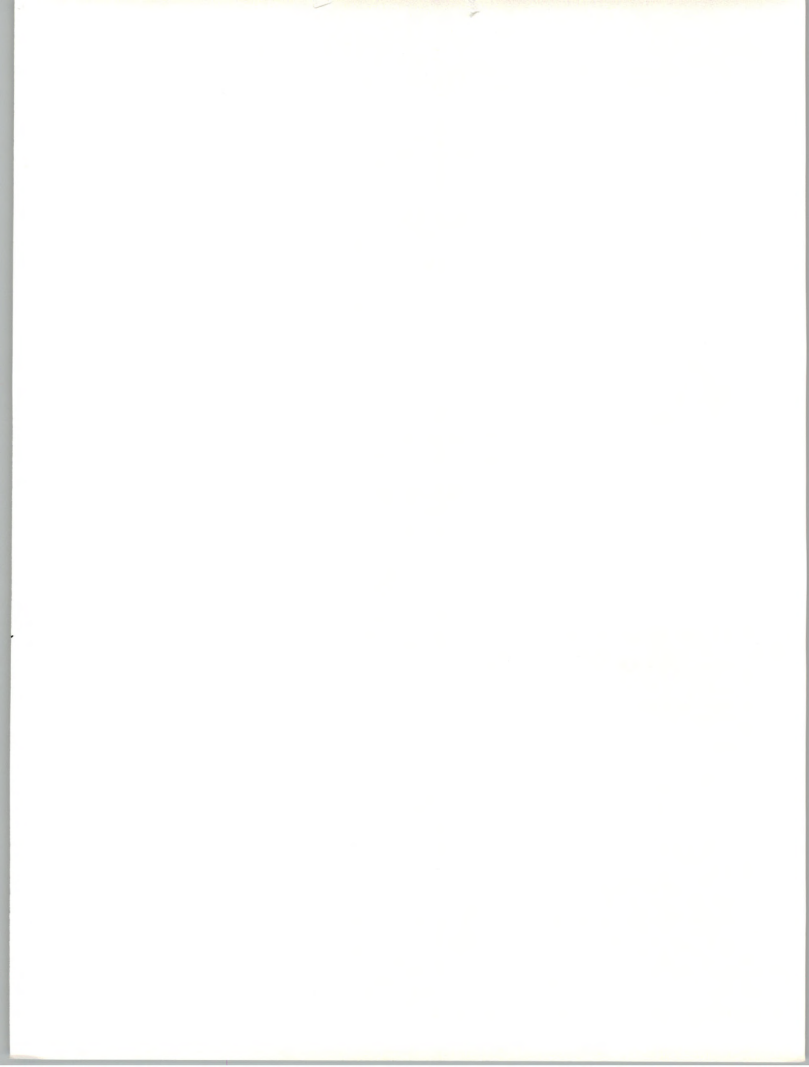
Appendix: Forecast Reconciliation

EXHIBIT UT-B-1

UTILITIES SECTOR DATA BASE RECONCILIATION OF MARKET FORECAST BY DELIVERY MODE (\$ Millions)

Industry Sector	1987 Market			1992 Market			CAGR	CAGR
	1987 Forecast	1988 Forecast	Variance (%)	1987 Forecast	1988 Forecast	Variance (%)	87-92 1987 Forecast (%)	87-92 1988 Forecast (%)
Total Utilities Sector	690	670	3	1,415	1,270	11	15	14
Processing/Network Services	150	125	20	255	260	-2	11	16
Application Software Products	150	145	3	380	340	12	20	19
Turnkey Systems	30	30	0	60	50	20	15	11
Professional Services	360	370	-3	720	620	16	15	11

Note: INPUT's 1987 Professional Services forecast includes systems integration software revenues.



About INPUT

INPUT provides planning information, analysis, and recommendations to managers and executives in the information processing industries. Through market research, technology forecasting, and competitive analysis, INPUT supports client management in making informed decisions.

Continuous-information advisory services, proprietary research/consulting, merger/acquisition assistance, and multiclient studies are provided to users and vendors of information systems and services (software, processing services, turnkey systems, systems integration, professional services, communications, systems/software maintenance and support).

Many of INPUT's professional staff members have more than 20 years' experience in their areas of specialization. Most have held senior management positions in operations, marketing, or planning. This expertise enables INPUT to supply practical solutions to complex business problems.

Formed as a privately held corporation in 1974, INPUT has become a leading international research and consulting firm. Clients include more than 100 of the world's largest and most technically advanced companies.

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